

CORROSION

VOLUME 22

JANUARY 1—DECEMBER 31

1966

C O N T E N T S

Tables of Contents

Alphabetical Subject Index

Alphabetical Index to Authors

P A G E N U M B E R S B Y M O N T H S

Pages	
191-214	July
215-252	August
253-270	September
271-296	October
297-324	November
325-352	December

Pages	
1- 28	January
28- 52	February
53- 80	March
81-116	April
117-156	May
157-190	June

Alphabetical Subject Index

CORROSION, Volume 22, 1966

A	A continued	C continued	E continued
ACIDS			
Acetic, influence in salt spray tests on aluminum, 7			
Fluosilicic, tantalum tests in, 1			
Hydrochloric vs 1095, 38C, 294			
" vs aluminum, 53			
" vs ferrosilicon alloys, 117			
" vs iron 15-40 chromium, 107			
" vs titanium, 98			
"-methanol vs titanium & zirconium, 29			
Nitric vs Inconel 600, Hastelloy B, C 108C with potassium dichromate, 285			
" vs titanium, 98, 320			
Ni-Cr-Mo-Fe-W alloys, heat treatment vs attack by, 336			
Phosphoric with potassium chloride, 120C vs tantalum, 1			
"-methanol vs titanium & zirconium, 29			
Sulfuric vs 17Cr ferritic, 297			
" + sodium chloride vs 202, 321, p257			
" vs 1045, 4047, 4140, 4340, 5140, anodic polarization in, 346			
" vs 310 with cathodic charging, 253			
" vs 310 with sodium arsenite, 23			
" vs nickel, 81			
" vs nickel, chromium, 32			
" vs titanium, 102			
"-methanol vs titanium & zirconium, 29			
Sulfurous vs low carbon steel, 143			
Active patches on nickel, chromium in hydrogen-saturated sulfuric acid, 32			
Aeration, differential couples, 13Cr, 18-9 steels in sea water, 16			
Ainsworth vacuum balance, 207, 291			
AIR			
vs Carbon steel, with brine, hydrogen sulfide, carbon dioxide, 325			
Drying, influence on titanium vs 65% nitric acid, 103			
Humid vs dry, tungsten, 600-1000C, 291			
Sulfur dioxide vs low carbon steel, influence on, 144			
Alcohol, molecular weight/influence on titanium, zirconium, stress corrosion cracking, 29			
Allihn, reflux condenser, 98			
Alloying elements, influence on stress corrosion cracking 4340 martensitic, 278			
ALUMINUM and ALLOYS			
2024 vs salt water, 7			
5000 series aluminum-magnesium vs marine environments, 68			
6061 vs salt fog, 7			
7075 vs exfoliation tests, 7			
Aging, influence vs exfoliation, 7			
(as alloy) influence vs 650-750C steam, 147			
Aluminum-magnesium nails vs salt fog, 7			
Exfoliation, mechanism, 7			
(in) iron vs oxygen 500-1000C, 168			
Hydrochloric acid, inhibition by amines, 53			
Alundum, 217			
AMMONIA			
vs a brass, 178			
vs copper & brass, 113			
Annealing, influence vs stress cracking, stainless steel, 23			
Annealing contamination of zirconium vs 500C water, 60			
ANODIC			
17Cr ferritic, sulfuric acid behavior, 297			
Passivation, high alloys in 649C fluoride salts, 194			
Polarization, nickel in sulfuric acid, continuous vs pulse techniques, 81			
" titanium, effect on cracking, 323			
Armco Iron, 277			
Autoradiographs, stress corrosion cracking of stainless steel, 49			
B			
Bakelite, 218			
Beckman, 217			
Beneficiation, ferrosilicon powder for, 117			
Blisters, hydrogen in 1020, 1000F, 313			
Blood, composition vs materials, 205			
BRASS			
o vs ammonia, 178			
Mercury-nitrate test, 74			
Bridgman method, crystal growing, 133			
Brine-hydrocarbon systems, rate studies in, 215			
Brine, carbon steel, in, 325			
Bristol AU recorder, 291			
Bromide solution vs titanium, 320			
Butylamines, inhibition for aluminum vs hydrochloric acid, 53			
C			
Cahn, R. G., Recording Electrobalance, 207			
Carbon, ferrosilicon alloys, effect on, 117			
Carbon, removal by hydrogen from 1020 steel 800 psig, 1000F, 315			
Carbonaceous material, influence on sulfuric acid attack, 137			
Carbon dioxide vs carbon steel, with brine, air and hydrogen sulfide, 325			
Cathodic charging, hydrogen vs 310 in sulfuric acid, 253			
Cathodic polarization, titanium vs cracks in salt water, 322			
Cathodic protection, Inor-8, Hastelloy B in 649C fluoride salts, 194			
Cations, influence on zirconium in 500C water, 63			
Cavitation, stainless steel, tantalum, molybdenum, columbium vs lead-bismuth 260-816C, 157			
Cerium vs oxygen, 206			
Chelating agents, influence on titanium in acids, 106			
Chlorate solution vs titanium, 324			
CHLORIDES			
Stainless steel vs 100 ppm boiling, 49 vs titanium, 320			
Chlorine vs titanium, 320			
CHROMIUM and ALLOYS			
17-4PH vs hydrogen sulfide, 238			
C CHROMIUM and ALLOYS Continued			
CHROMIUM and ALLOYS Continued			
Aluminum-magnesium, vs stress cracking, 69			
(in) Copper alloys, inhibition vs ammonia, 113			
Electrode potential in sea water, influence on, 16			
Ferrosilicon alloys, effect on, 117			
vs Hydrogen-saturated sulfuric acid 25-95C, 32			
Iron alloys, pitting in hydrochloric acid, effect on pitting, 107			
Iron passivation in hydrochloric acid, critical content for passivation, 111			
Chromium-nickel alloys, 316 vs 350-650C high purity water and steam, 280			
Chromium-nickel alloys, 347 vs 350-650C high purity water and steam, 280			
Coatings, chromized on mild steel, 107			
COLD WORKING			
202, 321, effect in sulfuric acid + sodium chloride, 257			
vs 17-7 (301) stress corrosion cracking, 23			
304 stainless steel, influence 700-900C, 152			
vs 309 in 42w/o magnesium chloride, 21			
Aluminum-magnesium vs sea water, influence, 72			
Columbium vs lead-bismuth 260-816C, 157			
Contamination, effect on zirconium in steam, 500C, 60			
COPPER and ALLOYS			
17Cr, influence vs sulfuric acid as alloy, 297			
Ammonia vs a brass, influence in, 178			
Contaminant in 500C water vs zirconium, 60			
Inhibited vs NH_4OH by $(\text{NH}_4)_2\text{CrO}_4$, 113			
Mercuric nitrate test, 74			
Copper-ammine effect on a brass, 181			
Copper-zinc ammonia complex, adsorbed on a brass, 178			
Corrater, 218			
Corrosion, 118			
Corrosion products, effect on living tissue, 205			
Corrosion research in universities, 296			
Cracks, hydrogen, 4340 vs 218C sodium chloride, 266			
Crevices vs 13Cr, 18-9 steels, salt water, 16			
Crystallographic plane, influence on zinc in sodium bromate, 132			
Current densities, cathodic protection of high alloys in fluoride salts, 194			
D			
Deoxo purifier, 33			
Dillon Machine, 230			
Duriron, 118			
Dysprosium vs oxygen, 206			
E			
ELECTROCHEMICAL PHENOMENA			
a brass vs copper-ammonia, 185			
Rate measurement, 215			
Stress corrosion cracking 4340 vs sodium chloride + oxygen, 234			
E			
GRAPHED DATA			
1034 AISI fatigue curves, air, salt water, with carbon dioxide, with hydrogen sulfide and carbon dioxide, 328			
17Cr polarization vs sulfuric acid, potential vs density, 300			
a brass, cracking time vs pH, copper-ammonia, 180			

G continued

GRAPHED DATA Continued
 Anodic polarization, mild steel, in lithium bromide solution uninhibited, 43
 Anodic polarization, mild steel in lithium bromide with Li_2CrO_4 , 43
 Aluminum vs hydrochloric, acid concentration vs cathodic protection, 56
 ", current density vs cathodic protection, 57
 ", inhibitor concentration vs cathodic protection, 57
 ", inhibitor efficiency vs acid concentration, 55
 ", inhibitor efficiency vs inhibitor concentration, 55
 ", inhibitor efficiency vs time, 55
 ", weight loss vs time, 54
 ", weight loss vs concentration, 54
 Carbon content vs distance through specimen wall, 800 psig hydrogen, 1000F, 317
 Cathodic polarization curves, ferro-silicon alloys, current density vs mV reversible potential, 122
 ", mild steel in inhibited lithium bromide, 43
 ", mild steel in lithium bromide, uninhibited, 42
 Cerium vs moisture, time vs wt/gain, 210
 Cold work vs 309 in MgCl_2 , 21
 Concentrated dissolved copper vs a brass in 1.5M ammonia, 183
 Corrosion current vs inhibitor concentration, mild steel in lithium bromide with Li_2CrO_4 , 45
 Electrode potential decay curves, 17Cr + 1; 3 Mo vs sulfuric acid
 FeCr vs hydrochloric acid, potential vs current density, 110
 Fe film growth vs potential, 93
 Ferrosilicon alloys, scanning rate influence polarization curve shape, 125
 Ferrosilicon alloys vs sodium chloride, alloying additions, influence on, 129
 Ferrosilicon alloys, immersion time influence on polarization, 123
 Grain size, stress vs time to failure 302 in 42w/o MgCl_2 , 262
 High strength steel, 5% sodium chloride with varying hydrogen sulfide, failure time vs hardness, 246
 High strength steel, failure times vs pH with and without hydrogen sulfide, 243
 Hydrogen attack depth vs hydrogen pressure squared, 1075F, 317
 Hydrogen attack depth vs time, 1200 psig, 1000F, 314
 Hydrogen cracking times 301 vs cold working MgCl_2 , 23
 Hydrogen volume through 310 vs time, 255
 Hydrogen penetration of 310 vs current density, 254
 Hydrogen permeation of 310 vs time, 254
 Hydrogen permeability of 310 vs current density, 256
 Hydrogen volume vs time, 1200 psig, 950-1100F, 315
 Mercury, boiling, liquidus curves vs Ti, Zr, Ni, Cr, Fe, Cr, Ta, 138
 Methane formation, 1000F vs time, 1000 psig hydrogen, 313
 Methane fugacity, 1200 psig hydrogen, vs specimen wall thickness, 311
 Methane volume vs time, 950F, 1200 psig hydrogen, 317
 Nickel content, influence, 17Cr NiFe in nitric acid 5N(Cr VI), 285
 Ni-Cr-Mo-Fe-W alloys, time-temperature transformation diagram, 340
 Oxidation of erbium, time vs weight gain, 209
 Oxidation lanthanum, time vs weight gain, 208
 Oxygen effect on polarization 4340 steel vs sodium chloride, stressed and un-stressed, 231, 232, 233

G continued

GRAPHED DATA Continued
 Oxygen influence polarization 4340 in sodium chloride, potential vs density, 276
 Passive film stability, 17Cr stainless steel vs Mo, Si, P, Cu vs H_2SO_4 , 305
 pH effect on aerobic fatigue life AISI 1035, 330
 Phosphate ions, time of removal rate by boiling chloride, 50
 Polarization curve, 17Cr + 1, 3 Mo, active region vs sulfuric acid, potential vs density, 300, 301
 Polarization curves, ferrosilicon vs 1% $\text{NaCl}/0.5\% \text{Na}_2\text{SO}_4$ at different potential scanning rates, 121
 Polarization data 4340 steel, sodium chloride potential vs current density, 231
 Polarization curves, Inor 8, Zircaloy 2, graphite under hydrogen-fluoride, 195
 Sodium chloride influence in sulfuric acid vs 202, 258
 Sodium chloride influence in sulfuric acid vs 321, 258
 Steels, mild and alloy, potentiostatic anodic polarization curves, hydrogen-saturated 5% sulfuric acid 25C, 347
 Stress corrosion cracking times, 301 vs cold working, MgCl_2 , 23
 Stress influence polarization 4340 in sodium chloride, potential vs density, 276
 Temperature dependence parabolic rate constant 1 & 5% Fe-Al, 175
 Temperature vs cracking time a brass in cu-ammonia, 183
 Tempering effect on polarization 4340 in sodium chloride, 233, 234, 235
 Ti potential vs time in chloride solutions, 322
 Ti⁺⁴ conc. vs weight gain Ti in hydrochloric boiling, 100
 Ti⁺⁴ vs weight change Ti in 20% hydrochloric, 101
 Weight gain vs time, FeAl 500-1000C vs oxygen, 170
 W, weight gain vs time, oxygen 600-1000C, 292
 Graphite vs fluoride salts, 649C, 194

H

Halides vs aluminum, exfoliation influence, 7
 Halides vs titanium, 320
 Hardness, relation to cavitation resistance, 157
 Hastelloy-B, 194
 Hastelloy-B & C vs 350-650C ultra-pure water and steam, 280
 HEAT TREATMENT
 13Cr, 18-9 steel in sea water, influence on, 16
 Ni-Cr-Mo-Fe-W alloys, 565-1170C, 336
 Holmium vs oxygen, 206
 Huey Test, Ti vs HNO_3 , HCl , 98
 Humid air, vs dry air, 600-1000C, 291
 Humidity tests, influence on aluminum exfoliation, 7
 Hydrates, aluminum, influence on exfoliation, 7
 HYDROGEN
 17-7 (301), stainless steel cracking, austenitic vs MgCl_2 , 154C, 23
 310 embrittlement in sulfuric acid, cathodic charging, 253
 310, penetration in sulfuric acid, 253
 4340 cracking in sodium chloride, room temperature, 269
 4340, permeation, 265
 vs Ferrovac 1020, 650-1400 psig, 510-621C, 309

H continued

HYDROGEN Continued
 Nitroethane accelerates diffusion 1095 in hydrochloric acid 38C, 294
 -Saturated sulfuric acid vs Cr, Ni, 32
 Steel, high strength, influence on stress corrosion cracking, 244
 Stress corrosion cracking in hydrogen sulfide, influence, 238 vs Titanium, 320
 Hydrogen-Fluoride vs high alloys 649C, 194
 HYDROGEN SULFIDE
 Cold work, influence cracking in, 238
 Cracking of carbon, low-alloy steels, 18Ni maraging, Monel, in, 238 vs high strength steels, Monel, 18 maraging, 238
 vs steel with carbon dioxide + water, 325, 351
 Hy-Tuf, 278

I

Inclusions, sites for stress corrosion cracking-initiating pits, 271
 Incoloy 800 vs 650-750C steam, 147
 INCONEL
 vs 350-650C high purity water/steam, 280
 600 vs 650-750C steam, 280
 600 vs HNO_3 108C with potassium dichromate, 285
 Inor-8, 194
 Incubation period, influence on stress corrosion cracking resistance, 302 in MgCl_2 , 261
 Indicarb, 207
 INHIBITORS
 Amines (butyl) n-, Di-n, Tri-n, 53
 Cations or anions vs chlorides, 49
 Hydrogen sulfide, value versus, 248
 Instantaneous rate studies, 215
 Lithium chromate vs 54% LiBr, 39
 $(\text{NH}_4)_2\text{Cr}_2\text{O}_7$ vs ammonia, 113
 Nitroethane accelerates hydrogen diffusion into 1095 steel, 294
 Titanium in 583-703C, 137
 Water, vs hydrochloric-methanol, titanium and zirconium, 29
 Interface, corrosion in 649C fluoride salts, 194
 Intergranular attack, high nickel austenitic steels, ultrapure water and steam 350-650C, 280
 Ions, zinc, apparent valency, 134
 Iron-Al-5% oxygen, 500-1000C, 168
 ISOTOPES
 Anions, 35S, 36Cl, 131I, 32P, 49
 Cations, 63Ni, 49

K

Kansite, 191, 349
 Keithley Electrometer, 217
 Kel-F, 230
 K-Monel vs hydrogen sulfide, 238

L

Lanthanide metals, oxidation characteristics, 206
 Lead, influence, stress corrosion cracking high Ni, NiCr alloys in 350-650C high purity water, steam, 287
 Lead-bismuth alloy vs stainless steel, Ta, Mo, Cr cavitation, 260-816C, 157
 Leeds & Northrup, 258

L continued'

Linear polarization measurements, 0.1 mpy or less, 198
 Lithium bromide with 0.2% lithium hydroxide vs A-414 steel, 39
 Lithium chromate, influence on A-414 vs LiBr, 39
 Lithium fluoride, 649C vs high alloys, 194
 Lutetium vs oxygen, 206

M

Mackinawite, FeS , 191, 349
 Magnesium alloy in zinc, 132
 MAGNESIUM CHLORIDE
 vs 17-7 (301), 154C, 23
 302 in 42 w/o at 154C, 261
 vs 309, 154C, 21
 vs Stainless steels, Inconel, Hastelloys, stressed, 42 w/o 154C, 281
 Manganese vs stress corrosion cracking of Al-Mg, 69
 Manganese sulfide, inclusions initiating stress corrosion cracks, 51
 Maraging steel, polarization in sodium chloride, pH 1.5, 235
 Martensite, hydrogen sulfide cracking, influence on, 248
 Martensitic steel, micropores in stress corrosion cracking, 271
 MECHANISM
 Amines vs aluminum in hydrochloric acid, 58
 Hydrogen diffusion accelerated by nitroethane, 295
 Hydrogen diffusion through steel, 310
 Ions deposited on surfaces, 51
 Zinc in sodium bromate, 132
 MERCURY
 304 stainless steel, 593-703C vs, 137
 410 stainless steel, 593-703C vs, 137
 Columbium-1Zr, 593-703C, 137
 vs Molybdenum, 593-703C, 137
 vs Tantalum, 593-703C, 137
 vs Tungsten, 593-703C, 137
 Metals, liquid, vs stainless steel, tantalum, 157
 Metals, liquid, vs titanium, 320
 Metallic contaminants' effect on zirconium in 500C water, 63
 Methane in 1020, hydrogen, 650-1400 psig, 510-621C, 309
 Methanol + chlorides vs titanium, 320
 Methanol with sulfuric acid, vs titanium, 29
 Methanol with hydrochloric acid vs titanium, zirconium, 29
 Mettler Balance, 207
 Microprocesses in stress corrosion cracking 4340 martensitic in sodium chloride, 271
 Microstructure changes, materials in 750C steam, 151
 Molecular weight, alcohol, influence, cracking time, titanium, zirconium, in hydrochloric-methanol, 29
 MOLYBDENUM
 17Cr, influence vs sulfuric acid, as alloy, 297
 Ferrosilicon alloys, effect on, 117, 130
 vs Lead-bismuth, 260-816C, 157
 Monel vs hydrogen sulfide, 238
 Mudge paint, 229

N

Neodymium vs oxygen, 206
 NICKEL and ALLOYS
 18 Ni maraging vs hydrogen sulfide, 238

N continued

NICKEL and ALLOYS Continued

18% maraging steel vs $\text{NaCl} + \text{O}_2$, 235
200, 270 vs sulfuric acid, 81
304, 316 stainless steel vs PbBi , 260-816C, 151
ARC 7915 vs 350-650C high purity water and steam, 280
Electrode potential in sea water, influence on, 16
Ferrosilicon alloys, effect on, 117
vs Hydrogen-saturated sulfuric acid, 25-95C, 32
Inconel vs 350-650C high purity water and steam, 280
Ni-Cr-Mo-Fe-W sensitization by heat treatment, 336
Stainless steel, Incoloy, Inconel, Rene-41 vs 650-750C steam, 147
Nitroethane accelerates hydrogen diffusion 1095 vs hydrochloric acid, 38C, 294
Nitrogen-tetroxide vs titanium, 320
Nuclear fuel, FVP recovery process, 194

O

Organics, chlorinated and brominated vs titanium, 320
Overshoot stabilized Ni-Cr-Mo-Fe-W alloys, 336
Oxides, on cold worked, annealed 304 stainless steel in 650C steam, 153

OXYGEN

vs 13Cr, 18-9 steels in sea water, 16
vs 4340 in sodium chloride, 271
a brass in cu-ammonia, effect vs, 184
vs Fe Al 500-1000C, 168
vs Inconel, Hastelloys, 304L, 316-347
in high purity water 350-650C, 280
Lanthanide metals vs, 206
vs Steel, carbon, with brine, hydrogen sulfide and carbon dioxide, 325
vs Tungsten, 600-1000C, 291
vs Zirconium in steam, 500C, 60

P

Passivation, 310, effect on hydrogen charging, 253
Passivation, pH, influence vs 13Cr, 18-9 steels, 16
Perspex, 53
pH
vs 13Cr, 18-9 steels, in sea water, 16
4340 Steel in sodium chloride + oxygen, influence on polarization, 229
4340 in sodium chloride, influence on stress corrosion cracking, 271
a brass in cu-ammonia, influence on stress corrosion cracking, 180
Solution effects on Fe vs H_2S , CO_2 , H_2O , 351
Steel, carbon, influence in fatigue tests, 325
Steel, high strength, influence on stress corrosion cracking in hydrogen sulfide, 248

Phillips recorder, 122
Phosphorus, 17Cr, influence vs sulfuric acid, as alloy, 297
Photomicrographs, tantalum in $\text{KCl}-\text{H}_3\text{PO}_4-\text{H}_2\text{O}$, 1

PITTING

202, 321 in sulfuric acid, types, 257
4340 martensitic, initiation of stress corrosion cracking, 271
FeCr alloys vs hydrochloric acid, 107
Platinum electrode in 649C fluoride salts, 194
Platinum fatigue of heart pacemaker wires, 205

P continued

POLARIZATION
4340, influence on stress corrosion cracking time vs sodium chloride, 275
Anodic vs stress corrosion cracking 301, in MgCl_2 , 154C, 23
Anodic, 1045, 4047, 4140, 4340, 5140 in sulfuric acid, 346
Cathodic, vs stress corrosion cracking 17-7 in MgCl_2 , 23
Fe Cu, tests in hydrochloric acid, 107

Potassium chloride vs tantalum with phosphoric acid, 120C, 1

Potassium citrate-Cu vs brass, 184

Potassium tartrate-Cu vs brass, 184

Potentiostatic testing, 4340 vs sodium chloride, 229

Potentiostatic testing, nickel in sulfuric acid, 81

Powder, ferrosilicon, for ore beneficiation, 117

Praseodymium vs oxygen, 206
Precipitate, grain boundary, carbon-silicon, influence on stress corrosion cracking, 277, 278

Pressure vessels, M-Cr-Mo-Fe-W, welding, 336

Prosthetic materials, stress corrosion cracking in body, 205

Pseudo-passivation, nickel in sulfuric acid, 86

Q

Quasi-martensite, 21

R

Radioactivation analysis of zirconium, 62
Radioisotopes, tritium in stress corrosion cracking tests, 275

Radiotracers, Ta^{182} in $\text{KCl}-\text{H}_3\text{PO}_4-\text{H}_2\text{O}$, 1

Rates, instantaneous, value in inhibitor studies, 215

Rates, measuring, 0.1 mpy or less, 198

Refractory metals vs mercury, 593-703C, 137

Rene 41 vs 650-750C steam, 147

Rodine 82A, 43

S

Samarium vs oxygen, 206
Self-dissolution from zinc in sodium bromate, 132

Sensitization of Al-Mg at 100C, 68

Sensitization, Ni-Cr-Mo-Fe-W, by heat treatment, 336

Servo/Ritter potentiometric recorder, 217

Silica, influence on oxygen vs zirconium, 60

Silicon, 17Cr, influence vs sulfuric acid, as alloy, 297

Silicon vs steam 650-750C, influence as alloy, 147

Simpson ammeter, 217

Sodium bromate vs zinc, 132

SODIUM CHLORIDE

vs 4340, stress corrosion in, 271

4340 tubing, 218C vs, 265

vs 4340, stressed, + oxygen, 229

vs Ferrosilicon alloys, 117

vs High strength steel, with hydrogen sulfide, 238

Sodium fluoride, 649C vs high alloys, 194

Sodium sulfate vs ferrosilicon alloys, 117

Spectrosil, 60

STEAM

650-750C, 42 kg/cm² vs stainless steel,

Incoloy, Inconel, Rene 41, 147

Oxygen in, vs zirconium, 500C, 60

S continued

STEEL, CARBON

A414 vs LiBr, 25C, 39
1095, vs hydrochloric acid, 294
4340, vs hydrogen, 218C in sodium chloride, 265
4340 vs sodium chloride + oxygen, 229
4340, stress corrosion vs sodium chloride, 271
vs Brine with air, hydrogen sulfide, and carbon dioxide, 325
High strength vs hydrogen sulfide, sodium chloride, 238
Sulfurous acid vs, 137

STEELS, STAINLESS

17Cr, ferritic effect of Mo, Cu, Si, P on anodic behavior in H_2SO_4 , 297
17-7, stress corrosion vs 42 w/o MgCl_2 , 23

18-8, ferritic, stress corrosion cracking, in MgCl_2 , 23

202, vs sulfuric acid + sodium chloride, 257

301 (17-7) vs 42 w/o MgCl_2 , 154C, 23
302, austenitic, grain size influence on stress corrosion cracking, 261

304, cavitation by Pb-Bi 260-816C, 157
304, cold work, annealed at 700-900C, 152

304 vs 100 ppm NaCl, boiling, 50

304 vs 650-750C steam, 147

304 L, polarization at 0.390V SCE in sulfuric acid, 198

309 austenitic vs MgCl_2 , 154C, 21

310 vs sulfuric acid + sodium arsenite, 23

316, cavitation by Pb-Bi 260-816C, 157
316, vs 650-750C steam, 147

321 vs sulfuric acid + sodium chloride, 257

321 vs 650-750C steam, 147

321 vs sulfuric acid + sodium chloride, pitting, type on, 257

406 vs 650-750C steam, 147

625 vs 650-750C steam, 147

X750 vs 650-750C steam, 147

4340 in 218C sodium chloride, influence on cracking, 266

STRESS CORROSION

304L vs 350-650C high purity water, steam, 280

316 vs 350-650C high purity water, steam, 280

347 vs 350-650C high purity water, steam, 280

Copper and alloys in ammonia, 113

High nickel austenitic steels in ultrapure water and steam 350-650C, 280

STRESS CORROSION CRACKING

17-7 (301) austenitic 42 w/o MgCl_2 , 154C, 23

309 in 42 w/o MgCl_2 , 21

310, cathodic charging of hydrogen in sulfuric acid, 253

4340 vs $\text{NaCl} + \text{O}_2$, 229

a brass vs ammonia, 178

Al-Mg 5000 series in sea water, 68

Initiation at Mg Sulfide inclusions, 49

Ni, Ni-Cr alloys 350-650C high purity water and steam, 280

Titanium in chloride, 320

Titanium in HCl-methanol, 29

Zirconium in HCl-methanol, 29

Stress-relief, Ti, Zr vs HCl-methanol, 29

Structure, influence on metal failure, 23

Substitutional steel 202 vs sulfuric acid + Sodium chloride, 257

Sulfide-Fe films, identification, 191

Sulfur dioxide vs low carbon steels, 143

Surface, passive effect on hydrogen permeation 310, 253

Surface topography, Ni and Cr vs hydrogen-saturated sulfuric acid, 32

Swagelok, 216

T

TABULATED DATA

410, 304 stainless steel vs boiling mercury, 139

Absorption spectra cu-ammonia, 181

Al-Mg tensile properties after 86 months

in sea water, 70

Al5Mg alloys stressed in atmosphere, 72

Al6.7Mg alloys, stressed in atmosphere, 71

Activation energies, nickel in hydrogen-saturated sulfuric acid + NK_2SO_4 , 32

Cathodic protection, high alloys in 649C fluoride salts, 197

Cavitation, Pb-Bi 260-816C vs stainless steel, tantalum, molybdenum, Cb, 160, 164

Cold work effect on line pipe low carbon steel cracking, 244

Contamination in 500C water, effect vs zirconium, 64

Corrosion current vs inhibitor concentration lithium chromate, 44

Corrosion products, steel + air + sulfur dioxide + water vapor, 145

Cracking, N-80, in air, carbon dioxide, hydrochloric acid, sulfuric acid, 244

Electrochemical parameters 17Cr, effects Mo, Cu, Si, P, 301

Electrode potential mercury/solution couples, 77

Electron probe microanalysis of zirconium, 65

Hydrogen sulfide concentration effect vs high strength steels, 244

Incoloy 800, Al modified, loss in 650C steam, 151

Inhibition vs cracking high strength steels hydrogen sulfide + sodium chloride, 245

Lanthanide metals, activation energies for oxidation, 209

Lanthanide metals, oxidation data, 207

NH_2CrO_4 vs cracking time stressed brass, 115

NH_2CrO_4 vs copper and brass during 6 weeks in ammonia, 114

N-80-2 cracking in hydrogen sulfide + sodium chloride after high temperature heat treatment, 243

Ni-Cr-Mo-Fe-W alloys stabilization, numerous data, 339, 343

Normalized high strength steel vs hydrogen sulfide, 342

Normalized and tempered high strength steels vs hydrogen sulfide, 243

Oxidation and rate constants, lanthanide metals, 208

Oxygen layers on Fe-Al 500-600C, 173

Oxygen scale vs time, Fe-Al, 171

Passive film breakdown times, 17Cr + Mo ferritic stainless steels, 304

Steel, high strength, vs Brown-Bassett fluids, failure times, 245

Steel, mild, vs Li Br weight loss, 43

Steel, quenched and tempered vs hydrogen sulfide, 243

Sulfide cracking resistance, alloy steels, 244

Tantalum vs $\text{KCl}-\text{H}_3\text{PO}_4-\text{H}_2\text{O}$, 120C, p. 1

Zn-Au, Zn-Mg, Zn-Al, anodic disintegration in sodium bromate, 135

Zinc, percent disintegration in sodium bromate at 25C, 134

Tacussel voltmeter, 122, 258

Tantalum vs $\text{KCl}-\text{H}_3\text{PO}_4-\text{H}_2\text{O}$, 120C, p. 1

Tantilon, 118

Tarnish, composition, brass in cu-ammonia solution, 160

TECHNIQUES

3-electrode polarization measurements, 215

Polarization resistance, measurement, 39

Steel, vs hydrogen sulfide + sodium chloride, 238

Alphabetical Author Index

CORROSION, Volume 22, 1966

A

Alon, A.
Corrosion Resistance of Ta to
Mixture of Phosphoric Acid and
Potassium Chloride at 120 C
... with M. Schor and A. Vromen . . 1

Alisp, Donald R. 205

Anand, Robert
An Investigation of the Utility
of Instantaneous Corrosion Rate
Measurements for Inhibitor
Studies 215

B

Barnwell, V. L.
Effect of Grain Size on Stress
Corrosion of Type 302 Austenitic
Stainless Steel, with J. R. Myers
and R. K. Sazer 261

Basil, J. L.
See R. B. Niederberger 68

Beck, F. H.
See J. R. Myers 32

Bedford, G. T.
See R. B. Niederberger 68

Berry, Warren E. 155, 287

Bloom, Mortimer C. 46

Bovankovich, J. C. 308

Bowden, Raymond C. 334

Boyd, W. K.
See L. K. Matson 194

Boyd, Walter K. 269

Bradley, Bryant W. 334

Brasunas, Anton DeS 278

Brothers, Fred 155

Burkart, E. R.
Effect of Cold Work on Stress
Corrosion of Type 309 Austenitic
Stainless Steel A Technical Note
with J. R. Myers and R. K. Sazer 21

C

Cohen, Arthur
Corrosion Rates of Mild Steel in
Alkaline Lithium Bromide Solutions
by the Polarization Resistance
Method with Robert V. Jelinek 39

Comeaux, Roy V. 205

Coriou, H.
Sensitivity to Stress Corrosion and
Intergranular Attack of High-Nickel
Austenitic Alloys, with L. Grall, C.
Mahieu and M. Pelas 280

Costas, L. P.
Some Chemical Aspects of the
Mercuric Nitrate Test Used for
Copper Alloys 74

Couper, Maria R. 205

Crow, W. B.
See J. R. Myers 32

D

Dauerman, L.
Effectiveness of Nitroethane as a
Hydrogen Diffusion Inhibitor, with
D. B. Denny and D. Shanefield 294

Deegan, D.
See L. Matsushima 23

Deman, J. T.
Effects of Contamination of Oxidation
of Zr in Steam with J. N. Wanklyn 60

Dunlop, A. K. 190

Denny, D. B.
See L. Dauerman 294

Duplessis, D. J.
See F. P. A. Robinson 117

F

Feige, Norman G.
Environmental Effects on Titanium
Alloys with T. J. Murphy 320

Fleitman, A. H.
Boiling Mercury Corrosion of Certain
Refractory Metals and Stainless
Steels from 593-703C, with J. A.
Romano and C. J. Klamut 137

Foster, A. D. 166

G

Garcia, R.
Ultrasonic-Induced Cavitation Studies
in Pb-Bi Alloy 500-1500 F, with
F. G. Hammitt 157

Geiger, G. H.
See R. J. Stueber 309

Gilpin, C. B.
See N. A. Tiner 271

Grall, L.
See H. Cariou 280

Green, N. D.
Oxidation Characteristics of the
Lanthanide Metals, with
F. G. Hodge 206

Green, N. D.
See D. A. Jones 198

H

Hammitt, F. G.
See R. Garcia 157

Hart, R. K.
See W. E. Ruther 147

Haworth, Burton, C. 155

Hehemann, R. F.
See J. H. Shively 253

Hodge, F. G.
See N. D. Greene 206

Hudgins, C. M.
Hydrogen Sulfide Cracking of
Carbon and Alloy Steels with
R. L. McGlasson, P. Mehdizadeh
and W. M. Roseborough 238

J

Jelinek, R. V.
See Arthur Cohen 238

Johnson, H. E.
Surface Chemical Factors
in the Stress-Corrosion Cracking
of Alpha Brass, with J. Leja 178

Johnson, Harland E. 335

Jones, D. A.
Electrochemical Measurement of
Low Corrosion Rates, with N. D.
Greene 198

K

Katz, Ted 278

Klamut, C. J.
See A. H. Fleitman 137

Korovin, Yu. M.
Effect of Oxygen Concentration and
pH on Electrode Potential of Stainless
Steels and Operation of Microcupcules
with I. B. Ulanovskii 16

Kruger, J.
Use of Ellipsometry in the Study
of Corrosion 88

L

Landers, J. E.
See Parvis Mehdizadeh 325

Lawler, John B. 197

Lebet, R.
Resistance to Pitting of Types 202 and
320 Steels to Sulfuric Acid and Sodium
Chloride Solutions, with A.
Piotrowski 257

Lee, L.
See F. Saegusa 168

Lee, R. H.
See Ruther, W. E. 147

Lifka, B. W.
An Improved Exfoliation Test for
Aluminum Alloys with D. O.
Sprawis 7

Lizlovs, E. A.
Effects of Mo, Cu, Si and P on
Anodic Behavior of 17 Cr Steels 297

Leja, J.
See H. E. Johnson 178

Logan, Hugh L.
Embrittlement of High Strength AISI
4340 Steel in Boiling NaCl Solutions,
with John M. Wehrung 265

Lynes, Wilson
Corrosion of Copper and Brass in
Ammonia Containing Chromate 113

M

MacCormack, H. E. 46

Mahieu, C.
See H. Coriou 280

M continued

Matson, L. K.
Cathodic Protection in Molten Fluoride
Salts at 1200 F, with E. F. Stephan,
P. D. Miller, W. K. Boyd and
R. P. Milford 194

Matsushima, I.
Stress Corrosion and Hydrogen
Cracking of 17-7 Stainless Steel
with D. Deegan and H. H.
Uhlig 23

McGlasson, R. L.
See C. M. Hudgins and Parvis
Mehdizadeh, 238, 349

McGrew John W. 287

McLeod, W.
Sulfurous Acid Corrosion of Low Carbon
Steel at Ordinary Temperatures -
I. Its Nature, with R. R. Rogers 143

Mehdizadeh, Parvis
Corrosion Fatigue Performance of a
Carbon Steel in Brine Containing
Air, H₂S and CO₂ with R. L.
McGlasson and J. E. Landers 325

See C. M. Hudgins, 238

Meyer, A. R.
See C. H. Samans 336

Meyer, F. H. 349

Landers, J. E.
See Parvis Mehdizadeh 325

Milford, R. P.
See L. K. Matson 194

Miller, P. D.
See L. K. Matson 194

Miller, Walter L. 324

Milton, Charles
"KANSITE" -- Mackinawite, FeS.
Technical Note 191, 350

Mori, Kenji
Stress Corrosion Cracking of Ti and
Zr in HCl-Methanol Solutions with
Akira Takamura and Takaaki
Shimose 29

Murphy, T. J.
See Norman G. Feige 320

Myers, J. R.
Observations on the Anodic Behavior
of Nickel and Chromium: Surface
Topography and Temperature
Effect with W. B. Crow, F. H.
Beck and R. K. Sazer 32

Anodic Polarization Behavior of Low
Alloy Steels in Sulfuric Acid Solu-
tions with R. K. Sazer 346

See V. L. Barnwell, E. R.
Berkart 21, 261

N

Niederberger, R. B.
Corrosion and Stress Corrosion of
5000-Series Al alloys in Marine
Environments with J. L. Basil and
G. T. Bedford 68

Nieberlein, Vernon A.
Oxidation Characteristics of
Vapor-Plated Tungsten 291

Nobe, Ken
See R. R. Sayano 81

O	S	S continued	U
Overman, R. F. Using Radioactive Tracers to Study Chloride Stress Corrosion Cracking of Stainless Steels 48	Saegusa, F. Oxidation of Iron Aluminum Alloys in the Range 500-1000 C, with L. Lee. 168	Stephan, E. F. See L. K. Matson 194	Uhlig, H. H. See I. Matsushima 23
P			
Pelias, M. See Coriou, H. 280	Samans, C. H. Sensitization and Thermal Stabilization of Ni-Cr-Mo-Fe- W Alloy with A. R. Meyer and G. F. Tisinai 336	Straumanis, M. E. Surface Disintegration of Zinc Mono- and Polycrystals Dissolving Anodically in Sodium Bromate Solutions and the Apparent Valency of Zinc Ions, with Y. Wang 132	Ulanovskii, I. B. See Yu. M. Korovin 16
Phelps, E. H. 269, 278	Sardisco, J. B. 190, 351	Discussion: 205	Unni, V. K. V. Inhibition of Aluminum Corrosion in Hydrochloric Acid by N-, Di-n and Tri-n-Butylamines with T. L. Rama Char 53
Piotrowski, A. See R. Lebet 257	Saxer, R. K. See E. R. Burkart, V. L. Barnwell J. R. Myers 21, 32, 261	Stueber, R. J. Hydrogen Attack of Steel Under Dynamic Exposure Conditions, G. H. Geiger 309	Vromen, A. See A. Alon 1
Pitts, R. E. 190, 351	Sayano, R. R. Continuous and Pulse Polarization of Ni in H ₂ SO ₄ , with Ken Nobe 81	Sudbury, J. D. 349	V
R			
Rama Char, T. L. See V. K. V. unnl 53	Schlueter, R. R. See W. E. Ruther 147	Takamura, Akira See Mori Kenji 29	Wang, Y. See M. E. Straumanis 132
Riggs, O. L. 49, 351	Schor, M. See A. Alon 1	Teumac, Fred N. 228	Wanklyn, J. N. See J. T. Demant 60
Robinson, F. P. A. Polarization and Corrosion of Ferrosilicon Alloys for Iron Ore Beneficiation Media, with D. J. DuPlessis 117	Shanefield, D. See Dauermaier, L. 294	Tiner, N. A. Microprocesses in Stress Corrosion of Martensitic steels, with C. B. Gilpin 271	Ward, Alan Graham 166
Rogers, R. R. See W. McLeod 143	Shimose, Takaaki See Kenji Mori 29	Tisinai, G. F. See Samans, C. H. 336	Wehrung, John M. See Hugh L. Logan 265
Romanoff, A. J. See A. H. Fleitmand 137	Shively, J. H. Hydrogen Permeability in a Stable Austenitic Stainless Steel, with R. F. Hehemann and A. R. Troiano, 253	Toy, S. M. Polarization of Strained AISI 4340 Steel in Oxygenated NaCl solu- tions 229	Weiman, Sam H. Titanium Corrosion in Aqueous Solutions 98
Rosborough, W. M. See C. M. Hudgins 238	Sprowls, D. O. See B. W. Lifka 7	Troiano, A. R. See J. H. Shively 253	Wohlfeld, Gustave 205
Rutherford, W. E. Corrosion Behavior of Steels and Nickel Alloys in Superheated Steam, with R. R. Schlueter, R. H. Lee and R. K. Hart 147	Steigerwald, R. F. Effect of Cr Content on Pitting Behavior of Fe-Cr Alloys 107		

